

REMARKS

Initially, Applicant would like to express his appreciation to the Examiner for his courtesy in conducting an interview with Applicant's representative, Van Ernest of Greenblum & Bernstein, P.L.C., on August 11, 2006. The Examiner discussed the rejection under 35 U.S.C. § 101 and "practical applications" of the claims in more detail. No agreement was reached.

Upon entry of the present amendment, claim 16 will have been cancelled without prejudice and without disclaimer of the subject matter. Also, claims 1, 13 and 24 will have been amended to more clearly address a practical application of the claims. More particularly, claim 1 will have been amended to recite that whether to accept the prediction model is determined based on the comparison of the numerical value NTS with the numerical test statistic array; claim 13 will have been amended to substantially include the subject matter of canceled claim 16; and claim 24 will have been amended to recite that a hypothesis is accepted when the original data set is determined as not arising by chance. Applicant respectfully submit that all pending claims are now in condition for allowance.

In the above-referenced Official Action, the Examiner rejected claims 1-34 under 35 U.S.C. § 101 for non-statutory subject matter, stating that the invention has not been limited to a substantial practical application. Applicant respectfully traverses this rejection, as discussed below, and further submits that the rejection is moot in view of the above amendments to the independent claims.

In addition, the Examiner rejected claims 1-7, 15-18, 20, 21, 26, 28-31 and 34 under 35 U.S.C. § 103(a) as being unpatentable over TATSUOKA (U.S.

Patent No. 5,855,011) in view of ZHANG et al. (U.S. Patent No. 5,832,182). The Examiner rejected claims 8-11, 19, 22, 23, 27 and 33 under 35 U.S.C. § 103(a) as being unpatentable over TATSUOKA in view of ZHANG et al. and further in view of SHEN (U.S. Patent No. 6,041,788). The Examiner rejected claims 12-14, 24 and 25 under 35 U.S.C. § 103(a) as being unpatentable over TATSUOKA in view of ZHANG et al. and further in view of FAYYAD et al. (U.S. Patent No. 6,012,058). Applicant respectfully traverses these rejections at least for the following reasons.

The Examiner provided a number of bases regarding his rejection under 35 U.S.C. § 101. First, the Examiner stated that the claims have not been limited to a substantial practical application. Applicant submits that the rejection is now moot in view of the amendments to claims 1, 13, and 24, each of which now includes an added step for a practical application and a real world purpose. Applicant notes that the pending claims are at least analogous to the type of practical application to which the claims of the prior art relied upon by the Examiner (in the 35 U.S.C. § 103(a) rejections) are directed. For example, claim 1 in TATSUOKA is directed to "[a] method for classifying a test subject in one of a plurality of states in a domain ...," which, like the pending claims, may be generic, but is a practical, real world application nonetheless.

The Examiner also asserted that the recitations of the claims cannot be repeated and therefore lack concreteness, and are otherwise not reliable. Applicant respectfully submits that, if only one random number were used to examine a quantity of interest, then the Examiner's objection may be valid.

However, because many random numbers are to be generated for each quantity of interest, the multiplicity of random data sets, each consisting of many random numbers (e.g., 1000 random data sets), provides a cumulative effect which is non-random. See, e.g., paras. [0064]; [0068]. In other words, Applicant submits that two analyses, each based on 1000 random data sets, would produce substantially the same results. Thus the results are substantially repeatable, predictable, reliable and hence concrete.

Similarly, the Examiner also asserted that comparing incoming data to random generated data has no function or real world purpose. However, as discussed above, Applicant respectfully asserts that large quantities of random numbers have the cumulative effect of rendering the analysis repeatable, accurate, and precise. Thus comparing real data to randomly generated data does have a function and a real world purpose, e.g., to the extent a real world prediction model (in any discipline, such as medical research) can be accepted or rejected based on the determination of whether an event is random (i.e., happens by chance), as recited in claims 1, 13 and 24.

Lastly, the Examiner asserted that comparing real data to randomly generated data that is supposed to be of the same distribution is not reliable because one does not know the distributions due to the fact that it is randomly generated. However, the Examiner fails to take into consideration a basic distinction between data values and their distribution. The randomly generated data is generated according to predetermined, non-random constraints, and has a known distribution. The values are random but their distribution is not, and it is

in fact possible to select the same distribution. Thus the recited analysis is reliable, as discussed above.

Accordingly, Applicant respectfully requests the Examiner to withdraw the rejections under 35 U.S.C. § 101.

With respect to the Examiner's rejections under 35 U.S.C. § 103(a), Applicant respectfully traverses numerous teachings asserted by the Examiner. With respect to independent claim 1, for example, the Examiner asserted that the NTS of the claim is equivalent to the SPS disclosed in TATSUOKA. However, the NTS is a numerical value obtained by application of a test statistic formula, whereas the SPS of TATSUOKA is a state probability set. A number cannot be a set, and so the two are not equivalent. Further, TATSUOKA discloses classification items, whereas claim 1 recites probability distributions. Since a probability distribution indicates the frequency of occurrence of different elements, such as items, probability distributions and items cannot be equivalent. Also, the Examiner asserted that "comparing" is equivalent to "test subject classified" of TATSUOK. However, "comparing," as used in claim 1, refers to the process of determining the relationship between a real number and the elements of an ordered set, while "test subject classified" refers to the assignment of a subject (i.e., of people) to a set. The two concepts are thus quite different.

The Examiner admitted that TATSUOKA does not teach creating a plurality of random data sets RDB(i) using randomly generated data, in which i is a positive integer. The Examiner therefore relied on ZHANG et al. to teach this feature. More particularly, the Examiner asserted that the "data sets" recitation in

claim 1 is taught by “each intended cluster” disclosed in ZHANG et al. However, the term “data sets” refers to the entire set of data under consideration, while “each intended cluster” of ZHANG et al. refers to a collection of subsets (or clusters) of the data set under consideration. Hence the two concepts are not equivalent. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 1 based on the combination of at least TATSUOKA and ZHANG et al.

With respect to independent claim 13, Applicant amended the claim by further reciting that a determination is made, based on the comparison between the plurality of numerical values and the numerical value corresponding to the original data set, whether the original data set is characterized by at least one factor that is not based on chance (which is substantially the subject matter of canceled claim 16). First, this is a practical application satisfying 35 U.S.C. § 101, as discussed above. Second, the portion of TATSUOKA on which the Examiner relied (in rejecting claim 16) merely mentions “decision-theoretic rule,” but does not teach or suggest comparing a fixed calculated value, derived from the original data set, to a set of calculated values derived from multiple random data sets (i.e., in order to determine whether a factor is based on chance). TATSUOKA does not make use of random data sets in this or any other respect. Accordingly, for at least this reason, in addition to the reasons set forth above with respect to claim 1, Applicant respectfully requests withdrawal of the rejection of claim 13 based on the combination of at least TATSUOKA and ZHANG et al.

With respect to independent claim 24, the Examiner admitted that the combination of TATSUOKA and ZHANG et al. do not teach each randomly generated data set having a second size, dimension and distribution relating to the original data set. The Examiner therefore relied on FAYYAD et al. to teach this feature. However, the “size” of the data sets in the claims refers to a measure of the entire original data set, while “M” of FAYYAD et al., relied upon by the Examiner, refers to the number of records in one cluster, which is merely a subset of the data. Further, contrary to the Examiner’s assertion, FAYYAD et al. do not teach or suggest using input parameters such as size, dimension and distribution of data to have each randomly generated data set having a second size, dimension and distribution relating to the original data set. Although FAYYAD et al. discuss random sampling, it does not refer to even one random data set, let alone a plurality of random data sets. Further, FAYYAD et al. do not discuss a combination of size, dimension and distribution, whether relating to a data set, or relating to the comparison of data sets. Accordingly, for at least these reasons, in addition to the reasons set forth above with respect to claim 1, Applicant respectfully requests withdrawal of the rejection of claim 24 based on the combination of at least TATSUOKA, ZHANG et al. and FAYYAD et al.

The Examiner relied on SHEN only to teach creating a plurality of random data sets using randomly generated data according to a Monte Carlo technique. Therefore, SHEN does not overcome the deficiencies of the combination of TATSUOKA, ZHANG et al. and/or FAYYAD et al., discussed above.


With regard to claims 2-12, 14-23 and 25-34, Applicant asserts that they are allowable at least because they depend, directly or indirectly, from independent claims 1, 13 and 24, respectively, which Applicant submits have been shown to be allowable. Applicant further asserts that these dependent claims are allowable based on their respective recitations, as well. For example, claims 7 and 21 recite that the function of percentile indices is a linear combination of the non-empty set of percentile indices. The Examiner relied on TATSUOKA to teach this feature, but TATSUOKA does not mention percentile indices.

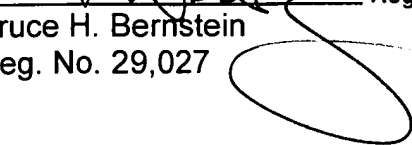
In view of the herein contained amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of previously asserted rejections set forth in the Official Action of May 26, 2006, together with an indication of the allowability of all pending claims, in due course. Such action is respectfully requested and is believed to be appropriate and proper.

Any amendments to the claims in this Reply, which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions concerning this Amendment or the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully Submitted,  
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